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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/655,847	09/06/2000	Yasuhiro Ishii	1560-0348P	9788
7590 06/07/2012 Birch Stewart Kolasch & Birch LLP P O Box 747 Falls Church, VA 22040-0747				
EXAMINER JOYCE, WILLIAM C				
ART UNIT 3658		PAPER NUMBER		
MAIL DATE 06/07/2012		DELIVERY MODE PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary**Application No.**

09/655,847

Applicant(s)

ISHII ET AL.

Examiner

WILLIAM C. JOYCE

Art Unit

3658

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 February 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 5) ☒ Claim(s) 7 and 10 is/are pending in the application.
- 5a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 6) ☐ Claim(s) ____ is/are allowed.
- 7) ☒ Claim(s) 2 is/are rejected.
- 8) ☒ Claim(s) 10 is/are objected to.
- 9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

This Office Action is in response to the RCE filed February 19, 2012 for the above identified patent application.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Eda et al. (USP 6,044,723) in view of Kamimura (JP 60-191758).

Eda et al. teaches a power steering apparatus having: an electric motor (21) for steering assistance; a worm shaft (30) on which a worm is disposed; a steering shaft (2,3), configured to engage a steering wheel, on which a worm wheel (13) is disposed and to which a rotary motion of said electric motor is transmitted through said worm shaft, and an interlocking member for connecting the motor shaft to the worm shaft (for example, see Figure 13A). Referring to column 1, lines 25-42, Eda et al. discloses the importance of setting the proper backlash between the worm and the worm wheel. For example, when the backlash is too small, the teeth mesh so tightly that the operational torque is increased. Alternatively, when the backlash is too great, undesirable noise is created by the teeth of the worm hitting the teeth of the worm wheel. Eda et al. clearly

identifies the importance of providing the proper backlash between worm gears of a steering device.

Eda et al. does not teach the claimed biasing arrangement for biasing the worm gears together so as to provide the proper backlash between gears. However, it was known in the art to use a biasing device for setting the backlash between worm gears.

Referring to the embodiment of Figure 1, Kamimura teaches a gear arrangement for solving problems of backlash generation between worm gears and the fluctuation of torque required to turn the worm gears. Specifically, Kamimura teaches a worm (23) engaging a worm gear (22), a biasing spring member (48) biasing, via a bearing (43), said worm shaft toward said worm wheel, a cylindrical bore accepting said bearing, the cylindrical bore defining a first concave member, a second concave member (41) accepting the spring biasing member, and a housing (42) for housing said bearing and said concave members, wherein the biasing member is movably acceptable only toward the concave member.

The biasing member (48) of Kamimura is movably acceptable only toward the concave member inasmuch as the biasing member (30) is movable only towards the concave member (83) of the instant device.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the worm gear arrangement of Eda et al. with the mechanism for setting backlash taught by Kamimura, motivation being to prevent problems of backlash generation between worm gears and the fluctuation of torque required to turn the worm gears.

Allowable Subject Matter

3. Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

4. Applicant's arguments filed February 19, 2009 have been fully considered but they are not persuasive.

Applicant argues the biasing member (48) of Kamimura is movably acceptable both towards and away from the concave member. It is understood the biasing member (48) of Kamimura is movably acceptable only toward the concave member inasmuch as the biasing member (30) is movable only towards the concave member (83) of the claimed device.

In response to applicant's argument that there is no teaching, suggestion, or motivation to combine the references, the examiner recognizes that obviousness may be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988), *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992), and *KSR International Co. v. Teleflex, Inc.*, 550 U.S. 398, 82 USPQ2d 1385 (2007). In the instant

case, the decision by the Board of Patent Appeals (mailed 7/17/2008) makes clear the rational in combining the teachings of Eda and Kamimura (see page 9, first full paragraph).

In view of the foregoing, the rejection of claim 7 is proper and maintained by the examiner.

Conclusion

5. This is a RCE of applicant's earlier Application No. 09/655847. All claims are drawn to the same invention claimed in the earlier application and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the earlier application. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action in this case. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no, however, event will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WILLIAM C. JOYCE whose telephone number is (571)272-7107. The examiner can normally be reached on Monday - Thursday 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Troy Chambers can be reached on (571) 272-6874. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/WILLIAM C JOYCE/
Primary Examiner, Art Unit 3658